

Independent claim 1 recites “storing, in plural attachment devices, **information respecting voice terminals accessible through the associated voice switch;**” and independent claim 11 recites “means in plural attachment devices for storing **information respecting voice terminals accessible through the associated voice switch.**” The Office Action, on page 6, item 3, argues that *Von Hammerstein et al.* satisfies the above features, citing col. 4, lines 26-42.

The cited passage, col. 4, lines 26-42, discloses that one technique for reducing the number of PVCs (Permanent Virtual Circuits) required in a frame relay network is to bundle multiple voice PVCs together under a single DLCI (Data Link Connection Identifier). This is accomplished by including multiplexing information in each of the voice packets transmitted to the frame relay network. From the perspective of the frame relay network, the bundled voice PVCs appear to be a single PVC because only one DLCI is allocated. However, when voice packets are received in a remote fragmenter or other frame relay access device that understands the sub-multiplexed addressing format, the remote device can use the multiplexing information to distinguish one PVC from another in a bundle. The voice packets can then be distributed to telephony equipment connected to the remote device according to the multiplexing information. The overall effect is to provide multiple PVCs in a bundle that appears to a frame relay network to be a single PVC.

Applicants disagree that the multiplexing information used in the *Von Hammerstein et al.* system is “**information respecting voice terminals accessible through the associated voice switch,**” as claimed. FIG. 4 and accompanying text (col. 4, lines 43-63) disclose that the multiplexing information includes the following fields: DLCI<sub>3-0</sub> (Data Link Connection Identifier), FECN (Forward Explicit Congestion Notification), BECN (Backward Explicit Congestion Notification), DE (Discard Eligibility), and EA (Extended Address). None of these fields relate to the voice terminals accessible to the associated voice switch. The cited passage

merely provides a general disclosure of distributing voice packets to telephony equipment connected to the remote device (i.e., remote fragmenter or other frame relay access device) according to the multiplexing information. This “telephony equipment” cannot be interpreted as the claimed “voice terminals,” but refers to a private branch exchange (PBX). For example, as shown in FIG. 10, the CPE-side queue logic 151 outputs to lines of the private branch exchange (PBX). Therefore, the interpretation adopted by the Office Action is technically unsustainable.

Additionally, the Office Action (on page 6) reiterates its contention that the link status messages issued by the remote FRAD of the *Von Hammerstein et al.* system can satisfy the feature of “storing information respecting voice terminals accessible through the associated voice switch,” citing col. 7, lines 23-51. The link status relates to the state of the communication paths, specifically the sub-multiplexed PVCs (col. 7, lines 25-33), not information about the end equipment. For example, in one implementation, a first type of link status message called a keep alive/connection status (KACS) message is packed with connection active information and new connection information in a format that does not exceed a predetermined packet length. Another type of link status message, called a congestion management (CM) message is used to supply rate control information for each of the sub-multiplexed PVCs. Receiver-not-ready, connection deletion and connection priority information that is otherwise received in LMI status response messages from the frame relay network is instead received in one or more additional types of link status messages transmitted through the frame relay network by the remote FRAD. This Receiver-not-ready information is with respect to the local FRAD (see col. 13, lines 5-14), not the voice terminals. Thus, the link status messages of the *Von Hammerstein et al.* system are not with respect to the voice terminals.

As regards the secondary reference, *White et al.* also fails to disclose the above features absent from *Von Hammerstein et al.* Accordingly, *Von Hammerstein et al.* and *White et al.*,

singly or in combination, fail to teach or suggest the noted features of independent claims 1 and 11.

Claims 2-10, and 12-20 depend respectively from independent claims 1 and 11, and accordingly, are allowable for at least the reasons put forth for the allowability of independent claims 1 and 11.

In the rejection of independent claim 21, the Office Action, on page 4, acknowledges that *Von Hammerstein et al.* fails to disclose “each frame relay attachment device is configured to store **an identification of all first voice terminals accessible**, without incurring toll charges, to the respective private branch exchange of the frame relay attachment device,” as positively claimed in independent claim 21. Consequently, the Office Action is forced to rely on *Koepper et al.* for such a supposed disclosure, stating that *Koepper et al.* discloses “listing of all Exchange Codes (ECs) handled by a local routing table of a memory in the DSM [D-Channel Server Module].”

Conspicuously absent from *Koepper et al.* is any discussion or suggestion of a frame relay network. Applicants, therefore, respectfully assert that the rejection is based on the improper application of hindsight considerations. It is well settled that it is impermissible simply to engage in hindsight reconstruction of the claimed invention, using Applicants' structure as a template and selecting elements from the references to fill in the gaps. *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991). Recognizing, after the fact, that a modification of the prior art would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. *In re Warner*, 397 F.2d 1011, 154 USPQ 173 (CCPA 1967).

In addition, a conclusion of obviousness is not compelled by the fact that the prior art could be modified so as to result in the combination defined by the claims; obviousness turns on whether the prior art suggests the desirability of the modification. The requisite motivation to establish a *prima facie* case of obviousness cannot be established by undercutting the expressed objectives of an applied reference. See *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992); *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *In re Schulpen*, 390 F.2d 1009, 157 USPQ 52 (CCPA 1968). In this instance, *Koepper et al.*, on col. 7, lines 30-59, discloses various advantages obtained with the Distributed Transit PBX 30 using a network of DSMs 50, 51, 54, and 56 over that of prior art networks 10, 20, and 20a shown in FIGS. 1, 2 and 3, respectively, are as follows. First, voice compression can be used in voice communications between two PBXs, and there is no tandeming of voice compression (which would be the case if it were a collection of PBXs instead of a single distributed PBX). More particularly, in the prior art network 20a shown in FIG. 3, if a voice call is made between, for example, PBX 22a and PBX 22d and a voice path needs to be compressed along the path between PBXs 22a and 22d to save bandwidth, the voice has to be decompressed and compressed again at each of the Transit PBXs 28a, 28b, and 28d along the route. With multiple compressions and decompressions, the voice quality deteriorates. However, if the plurality of Transit PBXs 28a, 28b, 28c, and 28d of FIG. 3 are replaced by the single Distributed Transit PBX 30 of FIG. 4, then compression and decompression is performed only once thereby saving the bandwidth and at the same time not compromising too much of the voice quality since a compressed path can be established directly between the B channels of the calling and called PBX interfaces. The compression step is performed after a free B channel on the called PBX interface is selected and when the B channel connection is performed. Second, call switching is possible between PBXs 32, 33, 34, 36, 37,

38, and 39 and the Remote Routing Table 87 in each DSM 50, 51, 54, and 56 provides the ability to use alternate routes between DSMS.

The above objectives of the *Koepper et al.* system are not only undercut if the distributed transit PBX is effected across the frame relay network of *Von Hammerstein et al.*, but unachievable if modified in the manner suggested by the Office Action. For example, the voice compression objective is achieved by interaction of the B channel and the PBX interfaces, which would not exist with the FRADs. Also, the objective of call switching by using alternate routes between DSMS cannot be readily achieved in the single PVC (using a single DLCI) approach of *Von Hammerstein et al.*

Furthermore, pursuant to MPEP § 2143.02, the Examiner must consider whether the modified system would have a reasonable expectation of success to meet his burden of showing **prima facie** obviousness. The modifications that the Office Action is suggesting to the *Von Hammerstein et al.* system to effect the distributed transit PBX of *Koepper et al.* would clearly raise doubts with respect to the expectation of success, given the disparity of the two systems' objectives and technical incompatibilities (e.g., signaling protocols, hardware interfaces, etc.). For example, it is unclear how the Office Action intends to successfully modify the multiplexing information (FIG. 4 of *Von Hammerstein et al.*) or the link status information to include the exchange codes (ECs).

Therefore, Applicants respectfully urge the withdrawal of the obviousness rejection of claim 21-23 over the combination of *Von Hammerstein et al.* and *Koepper et al.*

Therefore, the present application, as amended, overcomes the rejections of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 425-8508 so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

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